

WHAT WE CLAIM IS:

1. An energy absorbing and/or spreading garment including;
an inner layer,
5 an outer layer,
a plurality of arcuate panels housed between the inner layer and the outer layer
of the garment, and
wherein each panel is arranged to overlap at least one adjacent panel in a sliding
relationship with the at least one adjacent panel.

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2. An energy absorbing and/or spreading garment as claimed in claim 1 further
including a plurality of channels or pockets between the inner layer and the outer layer
of the garment to have the arcuate panels.

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3. An energy absorbing and/or spreading garment as claimed in claim 2 wherein
each channel or pocket is arranged to house one column of arcuate panels.

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4. An energy absorbing and/or spreading garment as claimed in any one of claims
1 to 3 wherein in cross-section shape each panel includes two lower side portions and a
higher middle portion.

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5. An energy absorbing and/or spreading garment as claimed in claim 4 wherein
the panels are arranged so that one side portion of a first panel is adjacent to the middle
portion of a second panel and a side portion of the second panel is adjacent the middle
portion of a third panel.

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6. An energy absorbing and/or spreading garment as claimed in claim 4 wherein
the panels are arranged in a symmetrical pattern with the axis of symmetry running
between the centre of the front of the garment and the centre of the back of the garment.

7. An energy absorbing and/or spreading garment as claimed in claim 6 wherein;

a centre panel with higher middle portion and lower side portions is situated between a first left side panel and a first right side panel,

both the first left side panel and the first right side panel have one side adjacent the middle portion of the centre panel,

5 a second left side panel has one side adjacent the middle of the first left side panel, and

a second right side panel has one side adjacent the middle of the first right side panels.

10 8. An energy absorbing and/or spreading garment as claimed in any one of claims 1 to 3 wherein the cross-section of each panel extends between a first side and a second side and includes a higher and lower middle portion.

9. An energy absorbing and/or spreading garment as claimed in claim 8 wherein;

15 the panels are arranged so that the lower middle portion of a first panel is adjacent a first side portion of a second panel,

the second side portion of the first panel is adjacent to the upper middle portion of the second panel,

20 the lower middle portion of the second panel is adjacent to the first side portion of a third panel, and

the second side portion of the second panel is adjacent to the upper middle portion of the third panel.

25 10. An energy absorbing and/or spreading garment as claimed in any one of claims 1 to 9 wherein the panels are arranged in a sliding relationship using a rivets and slots.

30 11. An energy absorbing and/or spreading garment as claimed in claim 10 wherein at each point where panels are adjacent at least one panel is provided with a slot and the panels are riveted with the rivet arranged to slide along the slot thereby allowing a sliding relationship between adjacent panels.

12. An energy absorbing and/or spreading garment as claimed in any one of claims 1 to 11 wherein the panels are arranged to form rows across the garment with each panel in the row housed in a channel or connected to the adjacent panel(s) by a suitable sliding connection means.

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13. An energy absorbing and/or spreading garment as claimed in any one of claims 1 to 12 wherein the garment is provided with more than one row of panels where panels form columns in each channel.

10 14. An energy absorbing and/or spreading garment as claimed in claim 13 wherein the garment is provided with overlap between the panels in each channel.

15. An energy absorbing and/or spreading garment as claimed in any one of claims 1 to 14 wherein the panels are formed from resilient deformable material.

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16. An energy absorbing and/or spreading garment as claimed in claim 15 wherein the panels are formed from plastics.

17. An energy absorbing and/or spreading garment as claimed in claim 15 or claim 20 16 wherein the panels are formed from PVC.

18. An energy absorbing and/or spreading garment any one of claims 1 to 14 wherein the panels are formed from a rigid material.

25 19. An energy absorbing and/or spreading garment as claimed in claim 18 wherein the panels are formed from metal.

20. An energy absorbing and/or spreading garment as claimed in claim 18 or claim 19 wherein after a panel has received an impact of greater than a predetermined force it 30 permanently deforms.

21. An energy absorbing and/or spreading garment as claimed in any one of claims 1 to 20 wherein the garment is provided with perforations to allow air to flow through the garment to a wearer.

5 22. An energy absorbing and/or spreading garment as claimed in any one of claims 1 to 21 wherein the inner and outer layers of the garment are formed of fabric.

23. An energy absorbing and/or spreading garment as claimed in claim 22 wherein the fabric of the inner and outer layers includes one-way stretchability.

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24. An energy absorbing and/or spreading garment as claimed in claim 23 wherein the stretchability is arranged to run across the garment.